

The Influence of Sexuality Education on the Sexual Knowledge and Attitudes of Adolescents in Busan, Korea

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<< SUMMARY >>

Adolescents experience intense and vigorous physical changes, and have a natural curiosity about sexual matters. To satisfy their curiosity, they obtain sexual information mostly from their friends and from lascivious media, especially websites on the internet. Consequently, they obtain incorrect knowledge and distorted sexual views. Thus, the purpose of this study was to compile a comprehensive sexuality education program and to evaluate its influence with the aim of bringing about an effective increase in the sexual knowledge and enhancement of the sexual attitudes of adolescents in Korea. The Randomized Solomon four-group design was used. Two experimental groups and two control groups were selected from two different co-educated middle schools. The experimental group was exposed to the sexuality education program which was presented weekly for fifteen consecutive sessions for 45 minutes each, while the control group received reading matter similar in content to the program, to reduce the Hawthorne effect. A questionnaire evaluated adolescents' knowledge of and attitudes towards sexuality. The effect of the program increased the adolescents' knowledge of sexuality and brought a positive change in their sexual attitudes. For this reason the sexuality education program for adolescents with its comprehensive content should be presented to learners in an interactive style.

Key words : adolescent, sex, sexual attitude, sexuality education, sexual knowledge

I. Introduction

Korean attitudes about sexuality traditionally originate from Confucianist culture. For Koreans, thus, sexual issues have for a long time been taboo. However, the traditional norms of Korean society have loosened, due to rapid economic development and the flood of the Western free-sex culture. Sexual information flooding in from Western media has led to open-mindedness with regard to sex, and has been weakening Korean morality (Chung, 1998; Lee, S., 2000). The access to mass media and the Internet has accelerated this process. The loosening traditional value system has also led to materialism and this further confuses adolescents' sexual values (Chung, 1998; Kye & Moon, 1999). Moreover, the gap between the rich and the poor as well as the divorce rate, impact negatively on the healthy socialization of adolescents.

Adolescents therefore need to be educated so that they can develop a positive sexual lifestyle and maintain good personal relationships. However, existing programs of sexuality educations have caused more curiosity about sexuality than giving adolescents satisfactory answers to questions. Adolescents consequently obtain more detailed knowledge from friends and the mass media, including pornographic videos, movies, internet sites and magazines (Kong et al., 2000; Moon, 2000). The deluge of inaccurate sexual information and distorted sexual knowledge leads to adolescents being misinformed about sexuality, and often indulging in unhealthy sexual practices. This is evident in the increase in the percentage of adolescents involved a first sexual encounter at a young age in Korea (Lee et al., 2000; Chang et al., 2001). Furthermore, another sexual practice has come into use in recent times, called *Wonzogyoze*. This refers to sexual intercourse between young girls and older men in order to fulfil their material needs (Kim, 2003). *Wonzogyoze* has led to a further acceleration of sexual problems such as teenage pregnancy, induced abortion and sexually transmitted diseases.

The Ministry of Education and Human Resources Development (MEHRD) in Korea released guidelines for new sexuality education concerned with reducing sexually related problems and promoting sexual health amongst elementary, middle, and high school students. Sexuality education for middle school students receives special emphasis (MEHRD, 2001), focusing on: 1) biological and emotional development, 2) communication in personal relationships, and 3) sexual culture and sexual values. However, schools only emphasize sexuality education because Korean adolescents have the extra burden of severe competition to pass the university entrance examination. Quality sexuality education, therefore, is not available because individual schools find it difficult to plan for it, lack sexuality education materials, and lack sexuality educators (Lee, S., 2000; Youn &

Kim, 2001; Choi, 2003). It is very likely that such a program is presented in a fragmented and unsystematic manner, and does not help the curious teenager.

Adolescents who have received sexuality education mostly found it unsatisfactory. The reasons were the textbook-like general information they received, while they received nothing that could help them practically and solve their sexual curiosity (Kang et al., 2000; Kong et al., 2000; Chang, 2001; Youn & Kim, 2001).

On the other hand, developed countries have tried several different sexuality educational methods for adolescents. Amongst these countries the Netherlands deserves special attention it has lowest teenage pregnancy rate and abortion rate in Europe (Valk, 2000; Lottes, 2002; Walker, 2002). The government and the society of the Netherlands accept the fact that education is better than denial, and provide accurate information and confidential contraceptive services to adolescents. The Netherlands also tries to teach responsibility in sexual decision-making as the basis for their sexual health program and allows an open discussion about sexual issues and encourages adolescents to talk about sex and topics that interest them (Valk, 2000; Lottes, 2002). As a result, in the Netherlands teenagers do not have to feel guilty or ashamed when using contraceptives, and feel that they have much more control over their own sexual behaviour than teens in most other countries (Bagnall, 2002).

SIECUS (Sex Information and Education Council of the U.S., as quoted by Hyde & DeLamater, 1997) suggest that the goals of comprehensive sexuality education should be: To provide accurate information about human sexuality; To provide an opportunity for students to develop their own values, attitudes and beliefs about sexuality; To help students develop relationships and interpersonal skills; To help students exercise responsibility regarding sexual relationships, including addressing, abstinence, and encouraging the use of contraceptive methods for students who are engaged in sexual intercourse to prevent unwanted pregnancies and STDs, including HIV infection.

Adolescents in Korea thus need to obtain more accurate information to increase their sexual knowledge and prevent sex-related problems by being able to choose their sexual attitude and behaviour (Lee et al., 2000). A more comprehensive approach could be the answer. The research objectives for this study were:

- To investigate the sexual knowledge and attitudes towards sexuality of adolescents in Korea,
- To compile a comprehensive program in sexuality education for adolescents in Korea, and
- To evaluate the influence of the comprehensive program in sexuality education on the knowledge and attitudes of adolescents in Korea.

II . Materials and Methods

1. Research design

The research design of this study was an experimental design using the Randomised Solomon four-group design, which minimizes threats to internal and external validity and controls the reaction effects of the pre-test. One of the experimental groups and one of the control groups take a pre-test (E1 and C1), and the other one from each group does not take a pre-test (E2 and C2) (De Vos, 1998, p. 135). Thus two experimental and two control groups were part of the design. The experimental groups (E1, E2) received the sexuality education program while the control groups (C1, C2) received reading matter on sexuality at the same time that the experimental groups started their program. The contents of the sexuality education program and reading matter were very similar in content (See 〈Table 1〉).

〈Table 1〉 The Randomised Solomon four-group design

	Group	Pre-test	Treatment	Post-test
Experimental Group	E1	Do	Sexuality education	Do
	E2	-	Sexuality education	Do
Control Group	C1	Do	Reading material	Do
	C2	-	Reading material	Do

2. Sample and sample size

The target schools were the two co-educated middle schools (Y, S) which were located in Youngdo-gu of Busan, Korea. The experimental groups (E1, E2) were selected from 9th grade in Y middle school, and the control groups (C1, C2) were selected from 9th grade in S middle school. The sample size for the experimental groups was 207, and that of the control groups was 209. Thus, the total number of distributed and collected questionnaires was 207 at Y and 209 at S middle school. However, 13 and 10 questionnaires of Y and S middle school respectively were not fit to use for statistical analysis because they were insufficiently completed. The total number of analyzed questionnaires for the experimental group was 193 (E1=100, E2=93) and 199 (C1=98, C2=101) for the control group. The total sample size was therefore 392.

3. Data collection

1) Questionnaire

The questionnaire was compiled and arranged on the basis of a comprehensive literature study by the researcher. Open-ended and closed-ended questions were set, focusing on the knowledge and the attitudes of sexual issue of adolescents. The format was based on a self-report. The questionnaire was divided into 5 sections, namely biographical data, relationships, experience of sexuality education, knowledge about sexuality, and attitudes towards sexuality. The total number of closed-ended questions were 100 for sexual knowledge and 86 for sexual attitudes. The contents of the questions on sexual knowledge' section were Understanding of sexuality, Reproductive system and function, Sexual desire, Masturbation, Pregnancy, Abortion, Contraception, STDs, HIV/AIDS, and the contents on sexual attitudes' section were Consciousness of sexuality, Sexual desire, Masturbation, Premarital intercourse, Abstinence, Pregnancy, Abortion, Contraception, STDs, HIV/AIDS, Self-esteem, Satisfaction of sexuality education. The pilot study was conducted on 25 learners who were excluded from the target schools.

2) Reliability and Validity

The value of the Cronbach α (alpha) coefficient test on sexual knowledge questions (100 questions) was 0.970, and that of the section on sexual attitudes (86 questions) was 0.873. According to the criteria as discussed by Brink (1996, p. 171) and Chae (2002, p. 250), the reliability of this study was proven by the high coefficient for the internal consistency of the questionnaire.

Also, the knowledge section of the questionnaire was evaluated for validity. The validity was ensured by supervisors of the study in South Africa and sexuality educational specialists in Korea. It was also determined by the 25 learners during the pilot study.

3) Sexuality education program

The program in sexuality education was compiled by means of a literature study and by focusing on all relevant aspects mentioned in journals, books, articles, and relevant internet databases. When the program on sexuality education to adolescents was compiled, attention was given to specific themes based on the recommendations of SIECUS (Hyde & DeLamater, 1997) and MEHRD (2001) in Korea. Both national and international data was used to ensure a

comprehensive approach including development of adolescents, sexual related behaviour and health, personal relationships, decision-making and responsibility in order to help in their daily life and future. Discussions were held with experts in the field and the recommendations of previous research studies were incorporated.

The content of the program in sexuality education focused on specific topics and were divided into 15 sessions of 45 minutes each (See 〈Table 2〉). Two main components where covered. In session 1~8 the focus was on increasing the sexual knowledge of the learners, and in sessions 9~15 the focus was on enhancing sexual attitudes and behaviour based on the sexual knowledge acquired in the previous sessions. More time was allocated for discussion during sessions 9 to 15.

Each session was presented once a week on specific prearranged days in each class. PowerPoint presentations, video tape, printed matter, discussion, role-play, and true-or-false quizzes formed the basis of the sessions in order to evaluate learners' understanding of the lecture. A brief summary concluded the sessions. The content and method of presentation of each session were given as an overview.

〈Table 2〉 Course unit outlay and learning objectives during 15 sessions
(Learning time: 45min.)

Session	Learning Subject	Learning Objectives
1 st	Sexuality and self-awareness	* Understand what sexuality is and sexual identity * Understand personality development including adolescence
2 nd	Male reproductive system and nocturnal emission	* Understand the male reproductive structure and function * Understand why nocturnal emission occurs
3 rd	Female reproductive system and menstruation	* Understand the female reproductive structure and function * Understand why menstruation occurs
4 th	Pregnancy	* Understand the process from fertilization to implantation * Understand symptoms of pregnancy and prenatal care
5 th	Abortion	* Understand the dangers of induced abortion * Understand the preventive method of induced abortion
6 th	Contraception	* Understand the importance of contraception * Understand how to use the contraceptives
7 th	Sexuality transmitted diseases(STDs)	* Understand what STDs are and the kinds of STDs * Understand the symptoms of STDs and their prevention

Session	Learning Subject	Learning Objectives
8 th	AIDS	<ul style="list-style-type: none"> * Understand the ways of transmission of the AIDS virus * How to behave towards AIDS patients
9 th	Sexual desire and masturbation	<ul style="list-style-type: none"> * Sexual desire during adolescence and ways to its control * Understand about masturbation
10 th	Relationships with the opposite sex and dating	<ul style="list-style-type: none"> * Developing interpersonal skills between the two sexes * Healthy attitudes for relationships and etiquette when dating
11 th	Importance of making your own decisions	<ul style="list-style-type: none"> * Understand the relation between love and sex * The importance and responsibility of own decisions
12 th	Expression and assertiveness	<ul style="list-style-type: none"> * The importance of self-expression and assertiveness * Develop effective conversation and refusal skills
13 th	Sexual abuse	<ul style="list-style-type: none"> * Understand the meaning of sexual abuse * Understand measures to prevent sexual abuse and treatment
14 th	Lascivious media and sex for reward	<ul style="list-style-type: none"> * The effects and ways to manage lascivious media * The problems of and solutions for commercial teen sex
15 th	Equality and healthy sexual life	<ul style="list-style-type: none"> * Understand equality between the two sexes * Understand how to lead a healthy sexual life in future

4) Reading matter for the control group

The reading matter for the control group was bound into a 61-page booklet. The same structure and content was followed as for the experimental group's program. The control group was provided with pictures and scenarios on paper but no videos. Before distribution the booklet it was evaluated by an educational specialist at the Busan Education Office, as well as by the supervisors of this study.

4. Data gathering and analysis

The questionnaire was distributed twice; First as a pre-test and then as a post-test. The pre-test was conducted one-week prior to the implementation of the sexuality education program for the E1 and C1 groups. The E1 and E2 groups were involved in the sexuality education program. At the same time that the program commenced the reading matter was distributed by the teachers to

the C1 and C2 groups. This was done to reduce the Hawthorne effect (Burns & Grove, 1991). The post-test was conducted two weeks after finishing the last session of the program for the experimental groups with E1, E2, C1 and C2 groups.

Data was analysed by means of the SPSS/PC WINDOW 10.0 program (2001). An analysis of the general questions was performed through a calculation of frequency and percentage by cross-tabulation analysis, and the Chi-square (χ^2) test was performed for significant differences and comparisons between frequencies of the data (Burns & Grove, 1993), to determine the values of χ^2 for all the post-test groups. To determine the effect before and after the sexuality education program a between-group comparison was done with *t*-tests for variance analysis (pre-test and post-test) (Burns & Grove, 1993). Also, a correlation analysis was performed to establish the relation between knowledge and attitudes about sexuality and sexuality education. Significance level of 0.05 ($p<0.05$) were used in view of the statistical tests performed.

5. Ethical consideration

Permission to conduct the study was obtained from the Busan Metropolitan City Office of Education and the Seobu Education Office in Busan, and from the principals of the two mentioned co-educated middle schools in Yeongdo-gu of Busan. After obtaining permission, the researcher secured the cooperation of the teachers in charge at the two middle schools who were involved in collecting questionnaires. The school health nurse and vice-principals at the middle schools were involved as mediators to obtain from representatives of learners' parents. The learners in this research were not forced to participate, and they could withdraw at any time. Every research respondent's anonymity was taken into account and the data remained confidential (Babbie & Mouton, 2001). Each respondent was provided with a number (Brink, 1996), and data was kept private and confidential until data coding took place.

III. Results

An analysis of the data revealed three main themes. These were 'A descriptive profile of the sample', 'Helping degree of the receiving sexuality education in daily life' and 'Effect of sexuality education program'.

1. A descriptive profile of the sample

1) Bibliographical data of respondents

The bibliographical data of both the experimental and control groups showed that both groups were very similar conditions and lived in a normal living situation comparing with sample size, sex, age, religion, having a private room, the size of their family, atmosphere in home, and financial situation. There are no significant differences between the two groups (See 〈Table 3〉).

〈Table 3〉 Bibliographical data of respondents

Frequency: N(%)

Item	Group			Item	Group		
	Total 392(100)	Experim. 193(49.2)	Control 199(50.8)		Total 392(100)	Experim. 193(49.2)	Control 199(50.8)
<u>Sex</u>				<u>Having own room</u>			
male	185(47.2)	98(50.8)	87(43.7)	Yes	237(60.5)	118(61.1)	119(59.8)
female	207(52.8)	95(49.2)	112(56.3)	No	155(39.5)	75(38.9)	80(40.2)
	χ^2	1.959			χ^2	0.074	
<u>Age</u>				<u>Atmosphere (home)</u>			
15	368(93.9)	177(91.7)	191(96.0)	Con.+ & warm	89(22.7)	38(19.7)	51(25.6)
16	24(6.1)	16(8.3)	8(4.0)	Con. & cold	22(5.6)	14(7.3)	8(4.0)
	χ^2	3.108		Lib.+ & warm	240(61.2)	123(63.7)	117(58.8)
				Lib. & cold	41(10.5)	18(9.3)	23(11.6)
	χ^2				χ^2	4.204	
<u>Religion</u>				<u>Financial situation (home)</u>			
None	152(38.8)	69(35.8)	83(41.7)	Very poor	5(1.3)	2(1.0)	3(1.5)
Christian	96(24.5)	44(22.8)	52(26.1)	Poor	53(13.5)	20(10.4)	33(16.6)
Catholic	30(7.7)	22(11.3)	8(4.0)	Average	315(80.4)	163(84.5)	152(76.4)
Buddhism	113(28.8)	58(30.1)	55(27.6)	Rich	19(4.8)	8(4.1)	11(5.5)
	χ^2	9.480			χ^2	4.156	

⁺ Con.: Conservative, ⁺ Lib.: Liberal

2) Relationship with the opposite sex

40.6% of the respondents are involved in relationships. Female respondents in both groups had or are having noticeably more relationships with the opposite sex than the males. Males and females from both groups indicated “kissing” as the action they most allowed (51.8% for the

experimental group; 41.2% for the control group), and the rate of “kissing” in two sexes of both groups is also higher than other actions when they are dating.

3) Sources of sexual information

The research showed that respondents still got a lot of sexual information from their friends (62.2%). The other important sources were the Internet (47.4%), teachers (45.7%) and television (39.3%). The respondents got very little sexual information from seniors (12.7%), mothers (9.9%), brothers/sisters (8.2%) and fathers (6.1%). Fathers were the least prominent source of sexual information.

4) Counselling for sexual problems

When they had any sexual problems, it was apparent that a friend was indicated as the most preferred person for counselling. Respondents indicated very similar as preferred person for counselling between the two groups before receiving sexuality education. After sexuality education, the respondents in the experimental group changed from “keep to self” to “counsellor”. On the other hand, males wanted to counsel with their teacher or a counsellor more than females, and when they had to discuss the matter with their parents, they wanted counselling with parents of the same sex, and females are more open-minded towards parents than males.

2. Helping degree of the receiving sexuality education in daily life

All respondents (100%) had received sexuality education at school. Effectiveness of the sexuality education in daily life was analyzed against the groups that took the pre-test (E1, C1) before and after receiving the sexuality education. Both experimental and control groups showed a negative response before exposing the program for this study, however it showed a significant difference only in the E1 group after receiving sexuality education. Also, after presentation of the program, 85.5% of the respondents in the experimental group answered that receiving sexuality education could be helpful in their own lives, and indicated that they would be interested to participate in such a program. On the other hand, because the control group was not exposed to the sexuality education program and only received reading matter, only 31.6% indicated an interest in such a program. There is a significant difference between the experimental and control group ($p<0.001$) 〈Table 4〉.

〈Table 4〉 Helping degree of the receiving sexuality education in daily life

Frequency: N(%)

	Before and after receiving SE ⁺		After receiving SE ⁺		Experimen. (E1+E2) N=193	Control (C1+C2) N=199
	Experimental (E1) N=100	Control (C1) N=98	Experimen. (E1+E2) N=193	Control (C1+C2) N=199		
<u>Had received SE</u>						
Yes	100(100)		98(100)		193(100)	199(100)
No	0		0		0	0
	Before	After	Before	After	After	After
<u>Helping degree</u>						
None	17(17.0)	3(3.0)	14(14.3)	14(14.3)	9(4.7)	31(15.6)
Very little	14(14.0)	3(3.0)	15(15.3)	10(10.2)	7(3.6)	26(13.1)
Little	9(9.0)	7(7.0)	32(32.7)	35(35.7)	12(6.2)	79(39.7)
Some extend	44(44.0)	48(48.0)	33(33.7)	32(32.7)	92(47.7)	44(22.1)
A Lot	16(16.0)	39(39.0)	4(4.1)	7(7.1)	73(37.8)	19(9.5)
χ^2	-6.203***		-1.010		10.314***	

*** p<0.001, ⁺ SE: Sexuality education

3. Effect analysis of the sexuality education program

The knowledge and attitudes about sexual matters of respondents before and after receiving sexuality education were compared between the experimental and control group or between the two sexes in each group by using the *t*-test or paired *t*-test.

The effectiveness of sexuality education program was analyzed by comparing the result of groups that took the pre-test (E1, C1) for “before and after” paired *t*-test. Also for the effectiveness of the program on 4 groups (experimental groups E1, E2 and control groups C1, C2) after conducting the program, the analysis was done by comparing between males and females within a group and between the two groups.

1) Knowledge about sexuality

Knowledge regarding sexual matters was measured by true or false items. A correct response was scored “1”, whereas an incorrect response or “Don’t know” was scored “0”. The score of all

the correct answers was given a score of 100. The higher score was an indication of better knowledge on sexual matters.

The sexual knowledge before receiving sexuality education of the respondents was generally poor (39.17 for the experimental group and 38.41 for the control group), but the score for sexual knowledge after receiving sexuality education for the experimental group was 70.79, compared to 49.46 for the control group. Thus, after receiving sexuality education, the score difference for the experimental group was 31.62 (from M=39.17 to M=70.79), compared to 11.05 (from M=38.41 to M=49.46) for the control group. There was no significant difference between the groups before receiving sexuality education, but there was a significant difference ($p<0.001$) after receiving sexuality education. The difference was greater in the experimental group (a difference of 21.33 between the mean scores of the two groups in (Table 5)).

〈Table 5〉 Comparing results of knowledge regarding sexual matters before and after receiving sexuality education within a group and between the two groups

Receiving SE \ Group	Experimental (n=100)	Control (n=98)	Difference	<i>t</i> -test
	Mean±SD	Mean±SD		
Before	39.17±19.13	38.41±13.36	0.76	0.325
After	70.79±17.66	49.46±17.26	21.33	8.593***
Difference	31.62	11.05		
Paired <i>t</i> -test	-16.920***	-8.182***		

*** $p<0.001$

The results of the *t*-test in 〈Table 6〉 show that there was no significant difference between male and female respondents in the experimental (males was 71.10 and 73.82 for females) or the control group (males was 53.71 and 50.67 for females). Mean of the sexual knowledge score of the experimental group was 72.44 and that of the control group 52.00. The difference of mean scores between the two groups thus was 20.44. It clearly shows a significant difference between the two groups regarding sexual knowledge after receiving sexuality education ($p<0.001$). On the other hand, comparing differences of mean scores on each male to male or female to female between the two groups, the difference score of males was 17.39, and females was 23.15. Thus,

females in the experimental group showed the highest score on the knowledge about sexuality (See 〈Table 6〉).

〈Table 6〉 Results of sexual knowledge of respondents after receiving sexuality education, as compared between males and females within a group and between the two groups

Sex (n=Ex., Co.)\Group	Experimental (n=193)	Control (n=199)	Difference	<i>t</i> -test
	Mean±SD	Mean±SD		
Total	72.44±16.97	52.00±16.40	20.44	12.127***
Male (n= 98, 87)	71.10±17.17	53.71±15.82	17.39	7.034***
Female (n= 95, 112)	73.82±16.74	50.67±16.79	23.15	9.899***
Difference	2.72	3.04		
<i>t</i> -test	-1.113	1.301		

*** p<0.001

2) Attitudes towards sexuality

Sexual attitudes were measured by 5 scale points (1 point: strongly disagree ~ 5 points: strongly agree). The items were arranged in several sub-items. The number of total sub-items was 86. The highest possible score of sexual attitudes was 430, and a higher score indicates more positive sexual attitudes.

The mean scores of the paired *t*-test for the experimental group (E1), changed from M=284.09 to M=303.38, and for the control group (C1) it changed from M=282.46 to M=285.22. It was found that the sexual attitudes in the experimental group became more positive after receiving sexuality education, and that this change represented a significant difference (p<0.001) from before the sexuality education, but there was no significant difference in the control group. Also, there was no significant difference between the experimental and control group before the program, but a significant difference was indicated between the two groups after receiving sexuality education (p<0.001) 〈Table 7〉.

〈Table 7〉 Comparing results of attitudes towards sexual matters before and after receiving sexuality education within a group and between the two groups

Receiving SE \ Group	Experimental (n=100)	Control (n=98)	Difference	<i>t</i> -test
	Mean±SD	Mean±SD		
Before	284.09±22.65	282.46±18.41	1.63	0.555
After	303.38±26.39	285.22±22.65	18.16	5.190***
Difference	19.29	2.77		
Paired <i>t</i> -test	-7.286***	-1.367		

*** p<0.001

After receiving sexuality education, it showed a significant difference between male and female respondents in both groups regarding sexual attitudes. It was computed that the mean score for sexual attitudes was 301.38 for males, compared to 308.68 for females. It was observed that the sexual attitudes of females were more positive than those of males. In the control group, the mean score for sexual attitudes was 277.92 for males and 288.00 for females. It was also observed that the sexual attitudes of females were more positive than those of males in the control group as well as the experimental group. However, there was a significant difference between the experimental and control group regarding sexual attitudes ($p<0.001$) 〈Table 8〉.

〈Table 8〉 Results of sexual attitudes of respondents after receiving sexuality education, as compared between males and females in a group and between the two groups

Sex (n=Ex., Co.) \ Group	Experimental (n=193)	Control (n=199)	Difference	<i>t</i> -test
	Mean±SD	Mean±SD		
Total	304.99±24.61	283.59±20.64	21.40	9.341***
Male (n= 98, 87)	301.38±26.05	277.92±23.23	23.50	6.449***
Female (n=95, 112)	308.68±22.64	288.00±17.22	20.68	7.456***
Difference	7.31	10.08		
<i>t</i> -test	-2.077*	-3.515**		

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

3) Comparing results of sexual knowledge and attitudes in a group after receiving sexuality education

In the research using Solomon four-group design, comparing the groups (E1:E2 and C1:C2) of which did the pre-test (E1 and C1) and which did not (E2 and C2), pre-test seemed not to have a significant testing effect (See 〈Table 9〉). On the other hand, as shown in 〈Table 9〉, both knowledge and attitudes of sexuality resulted high score in the experimental group, but only the knowledge showed a significant difference of the control group. It seems that the reading material could possibly increase knowledge but does not give a change of attitudes towards sexual matters.

〈Table 9〉 Comparing results of sexual knowledge and attitudes in a group
after receiving sexuality education

Experimental (n=193)			Control (n=199)		
Group	Mean±SD		Group	Mean±SD	
	Knowledge	Attitudes		Knowledge	Attitudes
E1(n=100)	70.79±17.66	303.38±26.39	C1(n=98)	49.46±17.26	285.22±22.65
E2(n=93)	74.22±16.10	306.69±22.62	C2(n=101)	54.47±15.20	282.01±18.45
t-test	-1.404	-0.932	t-test	-2.173*	1.099

* p<0.05

4) Correlation between sexual knowledge, attitudes and sexuality education

It appears that there is a positive correlation between sexual knowledge and attitudes, which differs significantly from zero ($p<0.001$). In particular, the times of sexuality education correlated more closely with sexual knowledge ($r=0.488$) than with sexual attitudes ($r=0.372$). However, sexual attitudes was more positively related to the satisfaction with sexuality education ($r=0.454$) than with sexual knowledge ($r=0.388$). Therefore, spending more time on sexuality education could lead to more sexual knowledge and more positive sexual attitudes; and, an increase in sexual knowledge can possibly prevent sexual risks. Moreover, it was that more satisfaction with sexuality education could lead to more positive attitudes (See 〈Table 10〉).

〈Table 10〉 Correlation between sexual knowledge, sexual attitudes, and sexuality education(SE)

	Sexual knowledge	Times of SE	Satisfaction of SE
Sexual attitudes	0.410***	0.372***	0.454***
Times of SE	0.488***	-	-
Satisfaction of SE	0.388***	-	-

*** p<0.001

IV. Discussion

Adolescents still get a lot of sexual information from their friends, and the other important sources are the Internet, teachers and television. With the comparison between the present study and other studies (Moon, 2000; Seo, 2003), there is a higher rate of picking up sexual information through the Internet in the present study (47.4%) than Moon (19.4%) and Seo (21.5%). This is a meaning that adolescents can more easily access to the Internet than past. They thus gather inaccurate sexual information through the Internet and form distorted sexual attitudes.

Many adolescents have a relationship with opposite sex, and they want to have a kiss when they are dating as well as Kim's study (2005). According to Crooks and Baur (2002), the lips and mouth are generously endowed with sensitive, pleasure-producing nerve endings that make it feel good to kiss. Also, many adolescents who are dating often engage in petting behaviour as an alternative to sexual intercourse because petting refers to erotic physical contact. Therefore, it can be presumed that adolescents want to be involved with kissing with the opposite sex, and it is possible to lead to sexual intercourse. Thus, sexuality education should focus on serious sexual matters as coitus when adolescents are dating.

Moreover, with reference to the issue of sexual intercourse among adolescents in Korea, Kim (2000, p. 10) reported that 13.4% of boys and 7.0% of girls from grades 7 to 9, and 32.5% of boys and 14.15% of girls from grades 10 to 12, have experienced sexual intercourse. According to Lee et al. (2003), however, 59.3% of male students and 46.6% of female students from grade 11 engaged in sexual intercourse, while the percentage of first sexual intercourse was 47.5% for

15~16 year olds, 22.8% for those under 13, and 11.5% for those over 17. It is known that adolescents from grades 8 to 10 can easily succumb to sexual temptation and are weak at controlling sexual desires.

Effect of sexuality education program. It can be observed that many respondents in the experimental group changed from “keep to self” to “counsellor” after receiving sexuality education. Therefore, sexuality education seems to guide adolescents towards consulting a counsellor when they experience sexuality education, whereas those who have not had sexuality education tried to find the solution alone or with friends.

The result of statistical analysis clearly shows that the direct teaching of sexuality education is more effective in developing positive attitudes towards sexually related matters than only providing reading matter on the learning subject, and it appears that the more the sexual knowledge, the more positive sexual attitudes are. In particular, after the program, females in the experimental group were observed to have more sexual knowledge and positive sexual attitudes than those of males. It may be presumed that the females were more interested in and concentrated more on the sexuality education during the opening of the program for this study than the males, because they were concerned about their sexual health.

Also, a sexuality education program which was presented in a comprehensive and interactive manner was more effective to increase sexual knowledge and enhance sexual attitudes than recent other studies (Moon, 2000; Kim, 2005; Lee, 2006).

On the other hand, from the research using Solomon four-group design, researcher expected that the groups which conducted the pre-test would have some testing effects compared with the groups that did not take the pre-test. However, as shown in 〈Table 9〉, the pre-test did not give any influence to the groups.

V. Conclusion and Recommendation

The present study of the sexual knowledge and attitudes of adolescents in Youngdo-gu, Korea, revealed that adolescents had a poor knowledge and displayed a slightly positive attitude towards sexuality before being exposed to sexuality education. However, the results clearly show a change in the situation, as adolescents indicate the program as a great benefit to them in changing their sexual attitudes towards more positive sexual attitudes in accordance with the increased sexual

knowledge, after participating in the sexuality education study. It also became clear that interactive sexuality education is by far a better and more effective alternative than only handing out reading material.

The compilation and presentation of the sexuality education program with its comprehensive contents and interactive methods has therefore proven to be well-planned and effective in contributing towards an increase in adolescents' sexual knowledge, and in bringing about a positive change in sexual attitudes. It is thus safe to say that a comprehensive interactive sexuality education program is a valuable educational tool to help adolescents undergo positive sexual development and to maintain a healthy sexual lifestyle.

It can be concluded from this study that sexual knowledge is closely related to positive attitudes regarding sexual matters. This was clearly illustrated when better informed respondents indicated more positive attitudes towards sexual behaviour.

This study also provided evidence that sexuality education program should be aimed at adolescents in the middle period of adolescence (15 years of age) because adolescents in this age group are very curious about sexual matters and try to imitate the sexual behaviour of adults.

The sexuality education program should be offered before adolescents are exposed to bad influences and wrong information. It should help them to obtain accurate sexual knowledge and to positively enhance their sexual attitudes and behaviour to prevent and protect them from sexual risks through the developing of responsible decision-making.

The sexuality education program should cover all the themes as well as preparing in 〈Table 2〉 and should be divided into two parts: 1) increasing sexual knowledge; and 2) enhancing sexual attitudes. The first part should be presented over 8 sessions during the first semester of the school year in the 9th grade and the second part over 7 sessions during the last semester of the school year. It is also important to establish comfortable interaction between the educator and the learners. The educator must maintain an open posture and act in a warm, understanding, caring, friendly and relaxed manner towards learners to ensure participation and a freedom in sharing during the presentation of the sexuality education program. Especially, the educator should be a positive and well-informed person with accurate knowledge about sexual issues and sexuality, as well as being comfortable with sexuality as a subject.

Also, sexuality education program should be a part of the regular program. Teachers, and especially school nurses, who discuss sexuality matters with students, should receive comprehensive sexuality education training from sexuality education experts before being involved in any sexuality education program. To ensure effective results of sexuality education for

adolescents, the society at large should get involved with interactive cooperation between governments, leaders, schools, experts, parents and the media. It would help to ensure a higher success rate in the task of ensuring that adolescents receive the proper sexuality education they need to better equip them for life.

Furthermore, parents' participation is very important in sexuality education. There is no doubt that sexuality education of the child is essentially a parent's task. Parents and their children should continuously talk about sexuality from a young age. It will be easier to talk about sexual issues and guide their children if it was done continuously, rather than starting suddenly when their children are adolescents. The parents are also the earliest sources of sexuality information to the child, through observation of parents' activities and attitudes. Therefore, parents should be an example of mutual trust and respect, and should be involved in sexuality education to help to guide their children.

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초 록

성교육이 청소년의 성 지식과 성 태도에 미치는 영향 (부산광역시를 중심으로)

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오늘날 청소년들은 인터넷이나 기타 매체를 통해 불건전한 성 정보에 쉽게 노출되고 있어 왜곡된 성 지식이나 성 태도를 습득하고 있다. 본 연구의 목적은 청소년들의 성 지식을 높이고 건강한 성 태도를 형성할 수 있도록 포괄적 성교육 프로그램을 만들어서 그 효과를 평가하기 위함이다. 연구 방법은 Randomized Solomon four-group design이 이용되었고, 실험군과 대조군을 각각 두 집단씩 선택하였다. 실험군에는 성교육을 실행하였고, Hawthorn effect를 줄이기 위하여 대조군에는 성교육 프로그램과 같은 내용의 읽기자료가 1인당 1매씩 분배되었다. 성교육의 효과를 평가하기 위한 연구의 도구로는 연구자가 제작한 설문지를 이용하였으며, 설문조사는 사전과 사후 두 번 행해졌다. 성교육프로그램은 각각 45분 교육으로 15차 동안 계속되었다. 본 연구의 결과는 성교육을 직접 받은 청소년들이 읽기자료를 받은 청소년들보다 성 지식의 증가와 성 태도의 긍정적인 변화를 현저히 가져오는 효과를 보였다. 따라서 청소년들이 정확한 성 지식의 습득과 바람직한 성 태도를 형성하기 위해선 교육의 도움이 필요하며, 또한 습득한 성 지식과 긍정적으로 형성된 성 태도가 건강한 성 행동으로 이어져 청소년들의 사회적 성문제를 감소하기 위해선 단기간의 성교육이 아닌 계획성 있는 포괄적 성교육 프로그램이 효과적인 것으로 사료된다.

주제어 : 청소년, 성, 성 지식, 성 태도, 성교육